



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/970,500	12/16/2010	Kulbir S. Sandhu	0G-046500US (065513-0315)	6239
67337 7590 05/02/2017 DYKEMA GOSSETT PLLC (STJ) 4000 Wells Fargo Center 90 South Seventh Street Minneapolis, MN 55402			EXAMINER BRUTUS, JOEL F	
			ART UNIT 3786	PAPER NUMBER
			NOTIFICATION DATE 05/02/2017	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

MN_IPMail@dykema.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KULBIR S. SANDHU and CEM SHAQUER

Appeal 2015-000542
Application 12/970,500
Technology Center 3700

Before ANNETTE R. REIMERS, THOMAS F. SMEGAL, and
GORDON D. KINDER, *Administrative Patent Judges*.

SMEGAL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Kulbir S. Sandhu and Cem Shaquer (Appellants)¹ seek our review under 35 U.S.C. § 134 of the Examiner's rejection² under 35 U.S.C. § 103(a) of claims 1–12 and 17–20³ as unpatentable over Brock (US 2002/0120188 A1, pub. Aug. 29, 2002) and Anderson (US 2007/0213616 A1, pub. Sept. 13, 2007); of claim 13 as unpatentable over Brock, Anderson and Muller (US 6,236,906 B1, iss. May 22, 2001); of claim 14 as unpatentable over

¹ According to Appellants, the real parties in interest are St. Jude Medical, Atrial Fibrillation Division, Inc., and Pacesetter, Inc. Appeal Br. 1.

² Appeal is taken from the adverse decision of the Examiner as set forth in the Final Office Action, dated Jan. 2, 2014 (“Final Act.”).

³ While the heading at page 2 of the Final Action fails to recite claims 10 and 20, Appellants acknowledge that they are included in this rejection. *See* Appeal Br. 4.

Brock, Anderson and Wallace (US 2006/0293643 A1, pub. Dec. 28, 2006); and of claims 15 and 16 as unpatentable over Brock, Anderson, and Cohen (US 2011/0160569 A1, pub. June 30, 2011). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

CLAIMED SUBJECT MATTER

Claims 1 and 17 are independent. Claim 1 is reproduced below and illustrates the claimed subject matter, with disputed limitations emphasized.

1. An apparatus for use in a robotic control system for manipulating a medical device toward a target, comprising:
an electronic control unit (ECU);
a computer-readable memory coupled to said electronic control unit; and

control logic stored in said computer-readable memory configured to be executed by said electronic control unit, said control logic ***configured to produce an actuation control signal to control actuation of a manipulator assembly of the robotic control system to move the medical device*** in and with respect to a plurality of pre-defined proximity zones along a path away from a current location of the medical device towards a target location of the medical device that is different from the current location, said control logic being further configured to generate said actuation control signal ***based on a proximity signal*** indicative of at least one of a proximity metric and a contact metric related to a location of the medical device relative to tissue of a patient and in accordance with said plurality of pre-defined proximity zones.

ANALYSIS

Obviousness of Claims 1–12 and 17–20 over Brock and Anderson

We are not persuaded by Appellants’ arguments that the Examiner erred in rejecting claims 1–12 and 17–20⁴ as obvious over Brock and Anderson. *See* Appeal Br. 4–13; Reply Br. 1–8.

Claim 1 is directed to an apparatus for use in a robotic control system where control logic is “configured to produce an actuation control signal to control actuation of a manipulator assembly” to move a medical device. The control logic is configured to generate the actuation control signal based on a proximity signal. Claim 17 is similarly directed to “control logic being configured to produce said actuation control signals based on at least said proximity signal, said manipulator assembly being responsive to said actuation controls signals to move said medical device.”

In rejecting claims 1 and 17, the Examiner finds Brock discloses several embodiments of a robotic control system for moving a medical device within a patient, including *inter alia*, control logic configured to produce an actuation control signal (feedback signal, such as the signal for controlling the content of display, vibration, an audible alarm, or force/haptic feedback that can inhibit or lessen further action) based on a proximity signal (sensor signal, such as the force signal or the detected signal indicating field strength/nerve proximity from sensor 5). *See* Final Act. 2–3; *see also* Brock ¶¶ 20, 26, 46, 47, 89 and 90. The Examiner finds the surgeon can move the medical device away from the current location to a

⁴ In the absence of arguments specific to its patentability, dependent claims 2–12 and 18–20 stand or fall with claims 1 and 17 consistent with 37 C.F.R. § 41.37(c)(1)(iv).

different target, in response to the actuation control signal, by entering input signals into computation system 9 via operating handle 12 at haptic interface 11. *See* Final Act. 4.; *see also* Ans. 10; Reply Br. 2 (explaining Brock).

Appellants argue certain limitations of claim 1 and 17 are not taught or suggested by Brock. Appellants argue Brock's feedback signals used to generate imaging, haptic feedback, and/or audible alerts produced in response to a sensing signal are *directed to the surgeon* and therefore not used by a computation system for generating actuation control signals for moving the instrument. App. Br. 6–7; *see also* Reply Br. 2–3 and 6. Appellants argue the surgeon only “takes into account” the feedback to actuate the manipulator assembly to move the medical device. Reply Br. 6–7.

We are not persuaded. We determine the scope of the claims in a patent application upon giving claims “their broadest reasonable interpretation consistent with the specification” and “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

Claim 1 does not require a computation system to directly and automatically control actuating the manipulator assembly to move the instrument in response to the actuation signal. Claim 1 requires control logic “configured to produce an actuation control signal *to control* actuation of a manipulator assembly of the robotic control system.” (Emphasis added.) The Examiner finds Brock's actuation control signal effectively controls the actions initiated by the surgeon to move a medical device via a manipulator assembly of the robotic control system. *See* Ans. 10–11. In other words, the Examiner's position is that Brock's feedback signal controls, i.e., influences

or directs, how a surgeon actuates the manipulator assembly to move a medical device.

As pointed out by the Examiner, Brock states “the controller(s) also controls action initiated by the operator at the haptic interface to the instrument.” *Id.* at 10; *see also* Brock ¶ 101. For example, Brock states the haptic feedback signal can actually inhibit further action by the surgeon. *See id.* at 3 citing Brock ¶¶ 89, 90. Because Brock discloses the feedback signal from the controller affects the surgeon’s actions, we agree the feedback signal is controlling the actuation of a manipulator assembly of the robotic control system *through the surgeon*, who acts as an intermediary between the actuation control signal and the moving of the medical device. Further, Appellants have not demonstrated that the Examiner’s broader interpretation of the claim is not consistent with Appellants’ Specification. For these reasons, we conclude that the Examiner properly accorded the claims the broadest reasonable interpretation consistent with the Specification.

Similarly, claim 17 does not require a computation system to directly control moving the instrument. Claim 17 recites a manipulator assembly “configured to actuate a plurality of control members. . . *in response* to a plurality of actuation control signals” and “*being responsive* to said actuation controls signals to move said medical device.” (Emphasis added.) The Examiner finds that (based on a generated sensor signal) Brock’s actuation control signals or feedback signals cause the manipulator assembly to sound an alarm or provide haptic feedback, i.e., the actuation control signal causes the manipulator assembly to respond. *See* Ans. 11; *see also* Brock ¶¶ 20, 21, 26, 46, 47, 89, and 90. Based on this response, the surgeon can then actuate the manipulator assembly to move the instrument in

multiple directions. *Id.* The Examiner finds, and we agree, that the movement of the medical device is effectively controlled, albeit indirectly, by the response in the manipulator assembly generated from the actuation control signal. *Id.*

For the foregoing reasons, we discern no error in the Examiner's findings and sustain the Examiner's unpatentability rejection of claims 1–12 and 17–20 over Brock and Andersen.

Obviousness of Claim 13 over Brock, Anderson and Muller; of claim 14 over Brock, Anderson and Wallace; and of claims 15 and 16 over Brock, Anderson, and Cohen

We understand Appellants' appeal of the rejections of claims 13–16 to rest on the arguments presented against the rejection of claim 1, which we found not demonstrative of error in the Examiner's rejection of claims 1–12 and 17–20 over Brock and Anderson, as set forth *supra*. See Appeal Br. 13–14. Therefore, we sustain the Examiner's unpatentability rejection of claim 13 over Brock, Anderson and Muller; of claim 14 over Brock, Anderson and Wallace; and of claims 15 and 16 over Brock, Anderson, and Cohen.

DECISION

We affirm the Examiner's rejections.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). See 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED